

P. Herson

Errors Corrected by the STIC Systems Branch

Serial Number:

09/254,870A

ENTERED

CRF Processing Date:

10/4/2000

Edited by:

Verified by:

STIC staff

RECEIVED

OCT 17 2000

TECH CENTER 1600/2900

RECEIVED

OCT 17 2000

TECH CENTER 1600/2900

- ☐ Changed a file from non-ASCII to ASCII
- ☐ Changed the margins in cases where the sequence text was "wrapped" down to the next line.
- ☐ Edited a format error in the Current Application Data section, specifically:

- ☐ Edited the Current Application Data section with the actual current number. The number input by the applicant was ☐ the prior application data; or ☐ other _____
- ☐ Added the mandatory heading and subheadings for "Current Application Data".
- ☐ Edited the "Number of Sequences" field. The applicant spelled out a number instead of using an integer.
- ☐ Changed the spelling of a mandatory field (the headings or subheadings), specifically:

- ☐ Corrected the SEQ ID NO when obviously incorrect. The sequence numbers that were edited were:

- ☐ Inserted or corrected a nucleic number at the end of a nucleic line. SEQ ID NO's edited:

- ☐ Corrected subheading placement. All responses must be on the same line as each subheading. If the applicant placed a response below the subheading, this was moved to its appropriate place.
- ☐ Inserted colons after headings/subheadings. Headings edited included:

- ☐ Deleted extra, invalid, headings used by an applicant, specifically:

- ☒ Deleted: ☒ non-ASCII "garbage" at the beginning/end of files; ☐ secretary initials/filename at end of file; ☐ page numbers throughout text; ☐ other invalid text, such as _____
- ☐ Inserted mandatory headings, specifically: _____
- ☐ Corrected an obvious error in the response, specifically:

- ☐ Edited identifiers where upper case is used but lower case is required, or vice versa.
- ☐ Corrected an error in the Number of Sequences field, specifically:

- ☐ A "Hard Page Break" code was inserted by the applicant. All occurrences had to be deleted.
- ☐ Deleted **ending** stop codon in amino acid sequences and adjusted the "(A)Length:" field accordingly (error due to a PatentIn bug). Sequences corrected: _____
- ☐ Other: _____

*Examiner: The above corrections must be communicated to the applicant in the first Office Action. DO NOT send a copy of this form.

3/1/95

RECEIVED

OCT 17 2000

TECH CENTER 1600/2900

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/254,870A

DATE: 10/14/2000
 TIME: 19:43:50

Input Set : A:\Pto.amc
 Output Set: N:\CRF3\10132000\I254870A.raw

3 <110> APPLICANT: SPENGLER, Dietmar
 4 JOURNOT, Laurent
 6 <120> TITLE OF INVENTION: Nucleic acid molecules coding for tumor suppressor
 7 proteins and methods for their isolation
 9 <130> FILE REFERENCE: 52130-A-PCT-US
 11 <140> CURRENT APPLICATION NUMBER: 09/254,870A
 C--> 12 <141> CURRENT FILING DATE: 1999-08-16
 14 <160> NUMBER OF SEQ ID NOS: 17
 16 <170> SOFTWARE: PatentIn Ver. 2.1
 18 <210> SEQ ID NO: 1
 19 <211> LENGTH: 2790
 20 <212> TYPE: DNA
 21 <213> ORGANISM: Mus sp.
 23 <220> FEATURE:
 24 <221> NAME/KEY: CDS
 25 <222> LOCATION: (542)..(2542)
 27 <400> SEQUENCE: 1
 28 gaattcggga gagcaagcgg gcatctcctg ggcgcgctca tggtgctta ggcgcgctg 60
 30 cctgcggatc gcggatccgg gatcggagat ctgacggcga cgcctgagtc cggctagggt 120
 32 aggtctgggt tggagtctgt gctgtcttcc ttggcgtgtg gttgttctc cttgattgct 180
 34 tcagcgtgcc atcggtctcg tatttgcaata ggagtcagag gaggtaatct tgcctcctcg 240
 36 aagatagact ctcatggttt atgatccatc tctgtgagaa gactttattt gtctgtctct 300
 38 tctcacaggt ttgagtcctc agacttctac agaactccat aatatctgcc tcacagctgg 360
 40 ctttctctgt ctacacagaag ataccagct attgtgctct ggatctctcc tggtgcttag 420
 42 gctgtagcgc tgcctttctg gactcaggct gtagtgactc cccaccttct ttctgtctgg 480
 44 gcttaaatgg cacagcagtt cctcagcaca tctgaagaag aaagtgtgag aaccaaaggc 540
 46 c atg gct cca ttc cgc tgt caa aaa tgt ggc aag tcc ttc gtc acc ctg 589
 47 Met Ala Pro Phe Arg Cys Gln Lys Cys Gly Lys Ser Phe Val Thr Leu
 48 1 5 10 15
 50 gag aag ttc acc att cac aat tat tcc cac tcc agg gag cgc cca ttc 637
 51 Glu Lys Phe Thr Ile His Asn Tyr Ser His Ser Arg Glu Arg Pro Phe
 52 20 25 30
 54 aag tgc tcg aag gct gag tgt ggc aaa gcc ttc gtc tcc aag tat aag 685
 55 Lys Cys Ser Lys Ala Glu Cys Gly Lys Ala Phe Val Ser Lys Tyr Lys
 56 35 40 45
 58 ctg atg aga cac atg gcc aca cac tcg cca cag aag att cac cag tgt 733
 59 Leu Met Arg His Met Ala Thr His Ser Pro Gln Lys Ile His Gln Cys
 60 50 55 60
 62 act cac tgt gag aag aca ttc aac cgg aag gac cac ctg aag aac cac 781
 63 Thr His Cys Glu Lys Thr Phe Asn Arg Lys Asp His Leu Lys Asn His
 64 65 70 75 80
 66 ctg cag acc cac gat ccc aac aag atc tcc tac gcg tgt gac gat tgc 829
 67 Leu Gln Thr His Asp Pro Asn Lys Ile Ser Tyr Ala Cys Asp Asp Cys
 68 85 90 95
 70 ggc aag aag tac cac acc atg ctg ggc tac aag agg cac ctg gcc ctg 877
 71 Gly Lys Lys Tyr His Thr Met Leu Gly Tyr Lys Arg His Leu Ala Leu
 72 100 105 110

RAW SEQUENCE LISTING

DATE: 10/14/2000

PATENT APPLICATION: US/09/254,870A

TIME: 19:43:50

Input Set : A:\Pto.amc

Output Set: N:\CRF3\10132000\I254870A.raw

```

74 cac tcg gcg agc aat ggc gat ctc acc tgt ggg gtg tgc acc ctg gag 925
75 His Ser Ala Ser Asn Gly Asp Leu Thr Cys Gly Val Cys Thr Leu Glu
76 115 120 125
78 ctg ggg agc acc gag gtc ctg ctg gac cac ctc aag tct cac gcg gaa 973
79 Leu Gly Ser Thr Glu Val Leu Leu Asp His Leu Lys Ser His Ala Glu
80 130 135 140
82 gaa aag gcc aac cag gca ccc agg gag aag aaa tac cag tgc gac cac 1021
83 Glu Lys Ala Asn Gln Ala Pro Arg Glu Lys Lys Tyr Gln Cys Asp His
84 145 150 155 160
86 tgt gat aga tgc ttc tac acc cgg aaa gat gtg cgt cgc cac ctg gtg 1069
87 Cys Asp Arg Cys Phe Tyr Thr Arg Lys Asp Val Arg Arg His Leu Val
88 165 170 175
90 gtc cac aca gga tgc aag gac ttc ctg tgt cag ttc tgt gcc cag aga 1117
91 Val His Thr Gly Cys Lys Asp Phe Leu Cys Gln Phe Cys Ala Gln Arg
92 180 185 190
94 ttt ggg cgc aaa gac cac ctc act cgt cac acc aag aag acc cac tcc 1165
95 Phe Gly Arg Lys Asp His Leu Thr Arg His Thr Lys Lys Thr His Ser
96 195 200 205
98 cag gag ctg atg caa gag aat atg cag gca gga gat tac cag agc aat 1213
99 Gln Glu Leu Met Gln Glu Asn Met Gln Ala Gly Asp Tyr Gln Ser Asn
100 210 215 220
102 ttc caa ctc att gcg cct tca act tcg ttc cag ata aag gtt gat ccc 1261
103 Phe Gln Leu Ile Ala Pro Ser Thr Ser Phe Gln Ile Lys Val Asp Pro
104 225 230 235 240
106 atg cct cct ttc cag cta gga gcg gct ccc gag aac ggg ctt gat ggt 1309
107 Met Pro Pro Phe Gln Leu Gly Ala Ala Pro Glu Asn Gly Leu Asp Gly
108 245 250 255
110 ggc ttg cca ccc gag gtt cat ggt cta gtg ctt gct gcc cca gaa gaa 1357
111 Gly Leu Pro Pro Glu Val His Gly Leu Val Leu Ala Ala Pro Glu Glu
112 260 265 270
114 gct ccc caa ccc atg ccg ccc ttg gag cct ttg gag cct ttg gag cct 1405
115 Ala Pro Gln Pro Met Pro Pro Leu Glu Pro Leu Glu Pro Leu Glu Pro
116 275 280 285
118 ttg gag cct ttg gag ccg atg cag tct ttg gag cct ttg gag cct ttg 1453
119 Leu Glu Pro Leu Glu Pro Met Gln Ser Leu Glu Pro Leu Gln Pro Leu
120 290 295 300
122 gag ccg atg cag cct ttg gag cca atg cag cct ttg gag ccg atg cag 1501
123 Glu Pro Met Gln Pro Leu Glu Pro Met Gln Pro Leu Glu Pro Met Gln
124 305 310 315 320
126 cct tta gag cct ttg gag cct ctg gag ccg atg cag cct ttg gag ccg 1549
127 Pro Leu Glu Pro Leu Glu Pro Leu Glu Pro Met Gln Pro Leu Glu Pro
128 325 330 335
130 atg cag cct ttg gag cct atg cag cca atg ctg cca atg cag cca atg 1597
131 Met Gln Pro Leu Glu Pro Met Gln Pro Met Leu Pro Met Gln Pro Met
132 340 345 350
134 cag cca atg cag cca atg cag cca atg ctg cca atg cag cca atg ctg 1645
135 Gln Pro Met Gln Pro Met Gln Pro Met Leu Pro Met Gln Pro Met Leu
136 355 360 365
138 cca atg cag cca atg cag cca atg cag cca atg ctg cca atg cca gag 1693

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/254,870A

DATE: 10/14/2000

TIME: 19:43:50

Input Set : A:\Pto.amc

Output Set: N:\CRF3\10132000\I254870A.raw

```

139 Pro Met Gln Pro Met Gln Pro Met Gln Pro Met Leu Pro Met Pro Glu
140      370      375      380
142 ccg tct ttc act ctg cac cct ggc gta gtt ccc acc tct cct ccc cca 1741
143 Pro Ser Phe Thr Leu His Pro Gly Val Val Pro Thr Ser Pro Pro Pro
144 385      390      395      400
146 att att ctt cag gag cat aag tat aat cct gtt cct acc tca tat gcc 1789
147 Ile Ile Leu Gln Glu His Lys Tyr Asn Pro Val Pro Thr Ser Tyr Ala
148      405      410      415
150 cca ttt gta ggc atg ccc gtc aaa gca gat ggc aag gcc ttt tgc aac 1837
151 Pro Phe Val Gly Met Pro Val Lys Ala Asp Gly Lys Ala Phe Cys Asn
152      420      425      430
154 gtg ggt ttc ttt gag gaa ttt cct ctg caa gag cct cag gcg cct ctc 1885
155 Val Gly Phe Phe Glu Glu Phe Pro Leu Gln Glu Pro Gln Ala Pro Leu
156      435      440      445
158 aag ttc aac cca tgt ttt gag atg cct atg gag ggg ttt ggg aaa gtc 1933
159 Lys Phe Asn Pro Cys Phe Glu Met Pro Met Glu Gly Phe Gly Lys Val
160      450      455      460
162 acc ctg tcc aaa gag ctg ctg gta gat gct gtg aat ata gcc att cct 1981
163 Thr Leu Ser Lys Glu Leu Leu Val Asp Ala Val Asn Ile Ala Ile Pro
164 465      470      475      480
166 gcc tct ctg gag att tcc tcc cta ttg ggg ttt tgg cag ctc ccc cct 2029
167 Ala Ser Leu Glu Ile Ser Ser Leu Leu Gly Phe Trp Gln Leu Pro Pro
168      485      490      495
170 cct act ccc cag aat ggc ttt gtg aat agc acc atc cct gtg ggg cct 2077
171 Pro Thr Pro Gln Asn Gly Phe Val Asn Ser Thr Ile Pro Val Gly Pro
172      500      505      510
174 ggg gag cca ctg ccc cat agg ata acc tgt ctg gcg cag cag cag cca 2125
175 Gly Glu Pro Leu Pro His Arg Ile Thr Cys Leu Ala Gln Gln Pro
176      515      520      525
178 ccg cca ctg ccg ccg cca cca ccg ctg cca ctg cca cag cca ctg cca 2173
179 Pro Pro Leu Pro Pro Pro Pro Pro Leu Pro Leu Pro Gln Pro Leu Pro
180      530      535      540
182 gtg cca cag cca cta cca cag cca cag atg cag cca cag ttt cag ttg 2221
183 Val Pro Gln Pro Leu Pro Gln Pro Gln Met Gln Pro Gln Phe Gln Leu
184 545      550      555      560
186 cag atc cag ccc cag atg cag cta cca cag ctg ctg ccg caa ctg caa 2269
187 Gln Ile Gln Pro Gln Met Gln Leu Pro Gln Leu Leu Pro Gln Leu Gln
188      565      570      575
190 cct cag cag cag cct gat cct gag cca gag cca gag cca gag cca gag 2317
191 Pro Gln Gln Gln Pro Asp Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu
192      580      585      590
194 cca gag cca gag cca gag ccg gaa ccg gaa ccg gag cca gag cca gag 2365
195 Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu
196      595      600      605
198 cca gaa cca gag cca gag gaa gaa cag gaa gag gca gaa gaa gag gca 2413
199 Pro Glu Pro Glu Pro Glu Glu Gln Glu Glu Ala Glu Glu Glu Ala
200      610      615      620
202 gag gaa gga gca gag gaa gga gca gaa cca gag gca cag gca gaa gaa 2461
203 Glu Glu Gly Ala Glu Glu Gly Ala Glu Pro Glu Ala Gln Ala Glu Glu

```

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/254,870A

DATE: 10/14/2000
 TIME: 19:43:50

Input Set : A:\Pto.amc
 Output Set : N:\CRF3\10132000\I254870A.raw

```

204 625          630          635          640
206 gag gaa gag gaa gag gaa gcg gaa gag cca cag cca gaa gaa gcc caa 2509
207 Glu Glu Glu Glu Glu Glu Ala Glu Glu Pro Gln Pro Glu Glu Ala Gln
208          645          650          655
210 ata gca gga ctc gtc tat aag aaa tgg aca gtt tagttcctct tcttgtagc 2562
211 Ile Ala Gly Leu Val Tyr Lys Lys Trp Thr Val
212          660          665
214 ttactctgta gttctctctt ctgttgccc attgtgtagc tttatagagt gtgacgctat 2622
216 tgatgtctcc attttttaaa gtgaatttaa atgtactgtt caatattttt catgtgatgt 2682
218 tgttccaatg tgagttacga cttcatttat cttaaagaca aaactgggtg tcagtcatat 2742
220 ctgacagaag aaagaaatca ctgtgtaacc aagccatata gcgggcgc 2790
223 <210> SEQ ID NO: 2
224 <211> LENGTH: 667
225 <212> TYPE: PRT
226 <213> ORGANISM: Mus sp.
228 <400> SEQUENCE: 2
229 Met Ala Pro Phe Arg Cys Gln Lys Cys Gly Lys Ser Phe Val Thr Leu
230 1 5 10 15
232 Glu Lys Phe Thr Ile His Asn Tyr Ser His Ser Arg Glu Arg Pro Phe
233 20 25 30
235 Lys Cys Ser Lys Ala Glu Cys Gly Lys Ala Phe Val Ser Lys Tyr Lys
236 35 40 45
238 Leu Met Arg His Met Ala Thr His Ser Pro Gln Lys Ile His Gln Cys
239 50 55 60
241 Thr His Cys Glu Lys Thr Phe Asn Arg Lys Asp His Leu Lys Asn His
242 65 70 75 80
244 Leu Gln Thr His Asp Pro Asn Lys Ile Ser Tyr Ala Cys Asp Asp Cys
245 85 90 95
247 Gly Lys Lys Tyr His Thr Met Leu Gly Tyr Lys Arg His Leu Ala Leu
248 100 105 110
250 His Ser Ala Ser Asn Gly Asp Leu Thr Cys Gly Val Cys Thr Leu Glu
251 115 120 125
253 Leu Gly Ser Thr Glu Val Leu Leu Asp His Leu Lys Ser His Ala Glu
254 130 135 140
256 Glu Lys Ala Asn Gln Ala Pro Arg Glu Lys Lys Tyr Gln Cys Asp His
257 145 150 155 160
259 Cys Asp Arg Cys Phe Tyr Thr Arg Lys Asp Val Arg Arg His Leu Val
260 165 170 175
262 Val His Thr Gly Cys Lys Asp Phe Leu Cys Gln Phe Cys Ala Gln Arg
263 180 185 190
265 Phe Gly Arg Lys Asp His Leu Thr Arg His Thr Lys Lys Thr His Ser
266 195 200 205
268 Gln Glu Leu Met Gln Glu Asn Met Gln Ala Gly Asp Tyr Gln Ser Asn
269 210 215 220
271 Phe Gln Leu Ile Ala Pro Ser Thr Ser Phe Gln Ile Lys Val Asp Pro
272 225 230 235 240
274 Met Pro Pro Phe Gln Leu Gly Ala Ala Pro Glu Asn Gly Leu Asp Gly
275 245 250 255
277 Gly Leu Pro Pro Glu Val His Gly Leu Val Leu Ala Ala Pro Glu Glu

```

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/254,870A

DATE: 10/14/2000
TIME: 19:43:50

Input Set : A:\Pto.amc
Output Set: N:\CRF3\10132000\I254870A.raw

RECEIVED
OCT 17 2000
TECH CENTER 1600/2913

```

278          260          265          270
280 Ala Pro Gln Pro Met Pro Pro Leu Glu Pro Leu Glu Pro Leu Glu Pro
281          275          280          285
283 Leu Glu Pro Leu Glu Pro Met Gln Ser Leu Glu Pro Leu Gln Pro Leu
284          290          295          300
286 Glu Pro Met Gln Pro Leu Glu Pro Met Gln Pro Leu Glu Pro Met Gln
287 305          310          315          320
289 Pro Leu Glu Pro Leu Glu Pro Leu Glu Pro Met Gln Pro Leu Glu Pro
290          325          330          335
292 Met Gln Pro Leu Glu Pro Met Gln Pro Met Leu Pro Met Gln Pro Met
293          340          345          350
295 Gln Pro Met Gln Pro Met Gln Pro Met Leu Pro Met Gln Pro Met Leu
296          355          360          365
298 Pro Met Gln Pro Met Gln Pro Met Gln Pro Met Leu Pro Met Pro Glu
299          370          375          380
301 Pro Ser Phe Thr Leu His Pro Gly Val Val Pro Thr Ser Pro Pro Pro
302 385          390          395          400
304 Ile Ile Leu Gln Glu His Lys Tyr Asn Pro Val Pro Thr Ser Tyr Ala
305          405          410          415
307 Pro Phe Val Gly Met Pro Val Lys Ala Asp Gly Lys Ala Phe Cys Asn
308          420          425          430
310 Val Gly Phe Phe Glu Glu Phe Pro Leu Gln Glu Pro Gln Ala Pro Leu
311          435          440          445
313 Lys Phe Asn Pro Cys Phe Glu Met Pro Met Glu Gly Phe Gly Lys Val
314          450          455          460
316 Thr Leu Ser Lys Glu Leu Leu Val Asp Ala Val Asn Ile Ala Ile Pro
317 465          470          475          480
319 Ala Ser Leu Glu Ile Ser Ser Leu Leu Gly Phe Trp Gln Leu Pro Pro
320          485          490          495
322 Pro Thr Pro Gln Asn Gly Phe Val Asn Ser Thr Ile Pro Val Gly Pro
323          500          505          510
325 Gly Glu Pro Leu Pro His Arg Ile Thr Cys Leu Ala Gln Gln Gln Pro
326          515          520          525
328 Pro Pro Leu Pro Pro Pro Pro Pro Leu Pro Leu Pro Gln Pro Leu Pro
329          530          535          540
331 Val Pro Gln Pro Leu Pro Gln Pro Gln Met Gln Pro Gln Phe Gln Leu
332 545          550          555          560
334 Gln Ile Gln Pro Gln Met Gln Leu Pro Gln Leu Pro Gln Leu Gln
335          565          570          575
337 Pro Gln Gln Gln Pro Asp Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu
338          580          585          590
340 Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu Pro Glu
341          595          600          605
343 Pro Glu Pro Glu Pro Glu Glu Glu Gln Glu Glu Ala Glu Glu Glu Ala
344          610          615          620
346 Glu Glu Gly Ala Glu Glu Gly Ala Glu Pro Glu Ala Gln Ala Glu Glu
347 625          630          635          640
349 Glu Glu Glu Glu Glu Glu Ala Glu Glu Pro Gln Pro Glu Glu Ala Gln
350          645          650          655

```

FYI

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

VERIFICATION SUMMARY

PATENT APPLICATION: US/09/254,870A

DATE: 10/14/2000
TIME: 19:43:51

Input Set : A:\Pto.amc

Output Set: N:\CRF3\10132000\I254870A.raw

L:12 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:370 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:3
L:370 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:3
L:370 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:3
L:395 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:5
L:395 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:5
L:395 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:5
L:429 M:258 W: Mandatory Feature missing, <221> not found for SEQ ID#:7
L:429 M:258 W: Mandatory Feature missing, <222> not found for SEQ ID#:7
L:429 M:340 W: (46) "n" or "Xaa" used: Feature required, for SEQ ID#:7